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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/668,798	09/23/2003	Soon Ho Lee	51876P395	4099

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EXAMINER	
HUNNINGS, TRAVIS R	
ART UNIT	**PAPER NUMBER**
2632	

DATE MAILED: 06/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/668,798	LEE, SOON HO	
	Examiner	Art Unit	
	Travis R. Hunnings	2632	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 April 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,4,5 and 11-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,4,5 and 11-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *23 September 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Claims 1, 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Olandesi (US Patent 5,739,774) in view of Schmier et al. (Schmier; US Patent 6,006,159) and further in view of Fujimoto (Japanese Patent JP354082584A).

Regarding claim 1, Olandesi discloses *Mass Transit Monitoring And Control System* that has the following claimed subject matters:

The claimed step of at one of the roadside base stations which are installed at side of roadway between the bus stops, receiving an on-board device ID from the on-board device in a bus, when the bus equipping the on-board device passes the roadside base station without stopping is met by the stop units collecting and disseminating information related to vehicle arrivals at the respective passenger stops (column 2, lines 29-56, column 4, lines 24-32, column 8, lines 56-59 and column 10, lines 35-51). The vehicles are not required to stop at the stop units to exchange the required information and it also would have been obvious that the stop units could be placed at any point along the roadway, whether at the passenger stops or between them, the functionality

would have stayed the same because the distance between the stop units would still have to be known to compute the timeliness of the system;

The claimed step of at the roadside base station, transmitting traffic information including the on-board device ID, a roadside base station ID and a pass time to the bus information server is met by the information that is transmitted between the stop units and the vehicle units including a vehicle ID number (column 10, lines 35-51), a stop number (column 8, lines 56-59) and the actual arrival time of the vehicles at the stop units (column 4, lines 24-32);

The claimed step of at the bus information server, computing a traffic speed of each section between the roadside base stations using the traffic information is met by the computing means calculating the timeliness of the system and sending information to the vehicle units, through the stop units, that includes the arrival time of vehicles at respective stops (column 2, lines 29-56 and column 4, lines 24-32). The timeliness of the vehicles in the system (which would be considered traffic on the road) would include the speed of the traffic along the route because the distance between units would have to be known and the system of Olandesi is measuring time required to travel that distance which is the definition of speed (distance over time);

The claimed step of at the bus information server, transmitting the computed time required for arriving at each of the next bus stops from the corresponding roadside base station is met by the computing means calculating the timeliness of the system and sending that information to the stop units to send to the vehicle units (column 2, lines 24-32);

The claimed step of at the roadside base station, transmitting the computed time required for arriving at each of the next bus stops to the on-board device when the roadside base station receives the on-board device ID is met by the stop units sending information including the timeliness of the vehicle along the route and any needed schedule adjustments (column 4, lines 24-32). It would have been obvious to wait until the stop station receives a vehicle ID number before sending the information in order to only send the information to authorized vehicles along the route;

However, Olandesi does not specifically disclose the claimed step of at the bus information server, computing an average traffic speed of each section between the roadside base stations using the computed traffic speed of each section and the step of at the bus information server, computing time required for arriving at next bus stops from the roadside base station based on the computed average traffic speed of each section. Fujimoto discloses *Bus Operation Control System* that teaches a centralized processing system that uses the speed of busses passing ground receivers along the bus route to compute an average speed that is used to compute the time required for the bus to arrive at the next stop station (constitution). Olandesi discloses computing the timeliness of the system at the central server but does not specifically disclose how the computation is done. Modifying Olandesi to use the average speed of the busses (and hence the traffic along the route since the busses are driving along with traffic and can be considered traffic themselves) would be a simple way to compute the time required to arrive at the next bus stations. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device disclosed by

Olandesi according to the teachings of Fujimoto to compute an average traffic speed of each section between stop stations using the computed traffic speed of each section and using that computed average traffic speed to compute the required time to arrive at the next stop stations.

However, Olandesi still does not specifically disclose the claimed step of at the on-board device announcing the expected arrival time of each of the next bus stops based on the computed time required for arriving through an output device. Schmier discloses *Public Transit Vehicle Arrival Information System* that teaches a display device in a bus that displays the estimated time of arrival at bus stops on the bus route to passengers of the bus (col11 36-55). The device of Olandesi only displays information for the upcoming (next) bus stop. Modifying the device of Olandesi to show not only the expected arrival time at the next bus stop but further stops along the bus route would give passengers a better idea of when they can expect to arrive at their destination. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device disclosed by Olandesi according to the teachings of Schmier to display the expected arrival time of the bus at each stop along it's route.

Regarding claim 4, Olandesi, Fujimoto and Schmier disclose all of the claimed limitations. The claimed method wherein the bus information server, the roadside base station and the on-board device determine a bus course based on the on-board device group ID is met by the information that is being exchanged between the stop units and

vehicle including the vehicle identification, a predefined stop number assigned to each passenger stop and route numbers (col4 24-32, col8 56-59 and col10 35-51).

Regarding claim 5, Olandesi, Fujimoto and Schmier disclose all of the claimed limitations. The claimed method wherein the bus stops are major bus stops is inherent in the device disclosed by Olandesi and Schmier as they do not discriminate between major and non-major bus stops in the transit systems that are serviced.

Regarding claim 11, Olandesi, Fujimoto disclose all of the claimed limitations except for the claimed step of the bus information server storing the computed traffic speed of each section to a section speed_DB. Schmier teaches the importance of having the location and average speed of vehicles in the system between various points in the system (column 2, lines 49-54) and storing that information in tables in the central server so that it can be easily transferred to the vehicles in the system (column 4, lines 5-60). Storing the calculated average traffic speed in tables in the central server would allow for quick access and storage of a large amount of information and also allow for easy transfer of that information to other sources. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device disclosed by Olandesi and Fujimoto according to the teachings of Schmier to store the computed traffic speed of each section to a section speed_DB.

Regarding claim 12, the claim is interpreted and rejected as claim 11 stated above. The claimed step of updating the average traffic speed of each section based on the computed traffic speed of each section previously stored in the section speed_DB is the definition of how to compute the average value of a group of values.

3. Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Olandesi in view of Schmier further in view of Fujimoto and further in view of O'Connor et al. (O'Connor; US Patent 6,803,862).

Regarding claim 13, Olandesi, Schmier and Fujimoto disclose all of the claimed limitations except for the claimed method including the steps of reading a bus stop_DB stored in the bus information server as a form of a table containing a bus stop list according to bus courses passing the roadside base station; computing the time required for arriving at each of the bus stops based on the table of the bus stop_DB; and storing the computed time for arriving at each of the bus stops in a requirement time_DB as a form of a table. O'Connor discloses *Communication System* that teaches a transit system with a centralized server that receives and transmits information regarding the vehicles along the transit routes in the system that includes a database which stores bus resource, bus route, bus timetable and messaging data (column 3, lines 42-48). Olandesi, Schmier and Fujimoto disclose a centralized server that calculates the timeliness of the system using stop units passing time and average speed of the vehicles in the system. Modifying the device of Olandesi, Schmier and

Fujimoto to utilize a database to store all of this information would be beneficial because storing all of the information in a database allows for easy transmission and modification to said information. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device disclosed by Olandesi, Schmier and Fujimoto according to the teachings of O'Connor to store the transit system information in a database and access the database information when computing new values for the timeliness of the system.

Regarding claim 14, Olandesi, Schmier, Fujimoto and O'Connor disclose all of the claimed limitations. The claimed step of the bus information server transmitting the table of the requirement time_DB and an on-board device group ID to the corresponding roadside base station is met by the central server transmitting the system timeliness status to the stop units to be transferred to the vehicle units (Olandesi: column 2, lines 24-32).

Response to Arguments

4. Applicant's arguments filed in amendment dated 12 April 2005 have been fully considered but they are not persuasive. Applicant makes the following arguments:

A: Regarding claim 1, applicant argues that Olandesi teaches that stop units are installed at each of the passenger drop-off and pickup stops. Thus, the bus taught by Olandesi must stop at the stop unit and therefore Olandesi does not teach or suggest each of the elements of claim 1.

B: Regarding claim 1, applicant argues that Olandesi does not teach or suggest computing required time for arrival based on the average traffic speed.

Responses:

Regarding argument A, the information exchange between the stop units and vehicle units of Olandesi occurs when the "vehicle moves within the immediate vicinity of a respective stop unit" (column 3, lines 54-67) and there is no mention of the vehicle unit having to stop in order to exchange the information. As is also commonly known busses do not always stop at the passenger drop-off/pick-up stations when no one wants to get off at that particular station and there are no passengers waiting to be picked up so the vehicles of Olandesi would not have to stop at the passenger drop-off and pickup stops. Examiner also contends that it would have been obvious to place the stop units at any place along the bus route as long as their relative distance was known in order to calculate the speed of the vehicle along the route.

Regarding argument B, the argument is moot in light of the new rejection over Olandesi, Schmier and Fujimoto.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Travis R. Hunnings whose telephone number is (571) 272-3118. The examiner can normally be reached on 8:00 am - 5:00 pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel J. Wu can be reached on (571) 272-2964. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TRH

DANIEL WU
SUPERVISORY PATENT EXAMINER
6/25/05